Technical Note

Technical Note Number: HGC Tech Note-1

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Family: Generator Controllers

Models Affected: HGC

Description:

With the controller in operation, an application sensor connected to the same in-cab +V power cables indicates wrong information or appears as missing to the engine ECU and shuts the engine down.

Background:

Back EMF **v**oltage spikes on the +V supply rail derived from the proportional valve PWM is causing active and sensitive passive sensors to give/report mis-information

Solution:

PWM control of a valve coil causes voltage/current spikes on the +power supply or battery positive wires. This may cause influence on other equipment connected to these cables or in the near vicinity.

To avoid this situation, the HGC must have dedicated and separate 14/16AWG low voltage fused, +supply and Ground (GND) wires run to the battery. This configuration allows the instantaneous current required by the valve coil and the voltage spikes caused by back EMF to be supplied and absorbed by the application battery.

HCT also recommends that where possible, all power, input and output cables used on the HGC and its valve control wires be twisted pair or shielded and grounded at one end.

Care should also be taken in routing of high voltage (120VAC @ 60Hz) or cables carrying PWM signals to and from the valves, these ideally should be in separate cable bundles and routed separately from cables that go to delicate instruments.

Greater physical separation between the positive battery wires and the wires to and from sensitive sensors helps minimize the noise coupling. If it is necessary to cross cables that connect instruments, cross the cables at a 90° angle in order to reduce noise coupling.

Finally, if you still have noise issues, we recommend installing a commonly available filter on the battery line that will reduce the current spike. HCT can recommend a source for the filter.